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Farmer Cooperatives: Cash Grain Farmers, Members, and Use



Farmer Cooperatives: Cash Grain Farmers, Members, and Use

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U.S. Department of Agriculture

More than 65 percent of all grain farmers were either members or nonmember patrons of marketing and/or farm supply cooperatives in 1980 and 1986. Other findings from analysis of the data include: a decrease in nonmember nonpatrons from 1980 to 1986 and an increase in the proportion of cash grain farmers holding cooperative membership. Also, cash grain farmers' economic participation in cooperatives was often at the highest expenditure level, particularly through farm supply expenditures; and, in general, as farm size increased, a larger percent of cash grain farmers participated in cooperatives with the exception of farmers in the largest size classes.

In 1980, cash grain farmers in the Northern Plains, Pacific, Northeast, Corn Belt, and Mountain regions had the largest proportion of farmers involved in cooperatives. In 1986, the Northern Plains, Mountain, Pacific, and Lake States had the largest proportion of cash grain farmers involved in cooperatives.

Keywords: Farmer cooperatives, grain, members, marketing, farm supply purchases

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Preface

This is another in a series of reports that describes the use of cooperatives by members and nonmember patrons. Data for this report were obtained from a stratified survey of U.S. farmers by the U.S. Department of Agriculture's National Agricultural Statistics Service (NASS), formerly the Statistical Reporting Service. NASS conducted nearly 17,000 personal interviews in 1987. In that year, ACS included additional questions in NASS's annual June 1987 Acreage and Livestock Enumerative Survey. These questions were included only in the 1987 survey.

Usable data from these surveys were expanded to represent all U.S. farmers. Data are presented for eight regions (Northeast, Southeast, Lake States, Corn Belt, Northern Plains, South Central, Mountain, and Pacific) and seven farm sizes (ranging from \$1,000 to \$500,000 and more).

This report describes the participation of cash grain farmers in cooperatives, usage by cash grain farmers who were members and nonmember patrons of cooperatives, participation of members in the cooperative in which they held membership, distribution of grain farmers who purchased selected farm supplies, and, finally, a description of purchases of farm supplies by cash grain farmers who also marketed grain through cooperatives.

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Highlights

Cash grain farms accounted for 26 percent of farms in 1980 and 21 percent in 1986. Grain farmers used cooperatives both as member and nonmember patrons to market their farm products and purchase farm supplies.

Although grain farmers represented only 21 percent of farmers in 1986, they were responsible for purchasing 42 percent of the fertilizer, 40 percent of the agricultural chemicals, 33 percent of the petroleum, and 43 percent of the seeds sold to farmers.¹

Other significant findings include:

- The overall proportion of cash grain farmers who were members of cooperatives in 1980 and 1986 remained relatively the same, 50 percent and 52 percent, respectively.
- More than 65 percent of all cash grain farmers patronized a cooperative as either a member or nonmember patron in both study years.
- Twenty percent of cash grain farmers marketed more than 80 percent of their grain through cooperatives.
- Sixty percent of those cash grain members who marketed grain through cooperatives, marketed more than 80 percent.
- In both years, 90 percent of cash grain members purchased farm supplies through a cooperative.
- Cash grain farmers were generally more apt to use cooperatives for supply purchases rather than for grain marketing.
- Thirty-four percent of cash grain farmers marketed some of their grain through cooperatives.

¹ 1987 Census of Agriculture, AC87-1-51, Volume 1, Part 51. U.S. Summary and State Data, U.S. Department of Commerce, November 1989. p. 126.

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OVERVIEW

Cooperatives are organized to serve the needs of the farmers who patronize them. To do this, cooperative leaders must continuously strive to understand these needs to better structure cooperatives and maximize benefits to farmers.

This study shows some patterns of cash grain farmers' use of cooperatives. These patterns will provide a better understanding of farmers' needs and provide answers to the following questions: What proportion of cash grain farmers were members of cooperatives? Does use of cooperatives increase as size of cash grain farms increases?

This report looks specifically at cash grain farmers and their use of cooperatives for marketing and purchasing. Grain marketing cooperatives may handle one or more types of grain and oilseeds.

A large portion of local grain cooperatives also provide patrons farm supplies and services such as fertilizer blending and distribution, petroleum product distribution, feed milling and distribution, building supplies, pesticides, steel products, seed, and many other items.³ Therefore, a combination of grain marketing and farm supplies in a cooperative generally provides greater efficiency in operation and service to members. In some

instances, sales of farm supplies may exceed the sales of grain marketed.

Cash grain farmers accounted for a large percentage of U.S. cooperatives' total net business. In 1980, U.S. farmer cooperatives marketed \$17.8 billion of grain (including soybeans and soybean oil and meal and excluding intercooperative business). This represented 36.4 percent of the \$48.9 billion total net business volume marketed by all farmer cooperatives in 1980. In 1986⁴, farmer cooperative grain sales totaled \$11.6 billion or 27.9 percent of the \$41.5 billion in sales marketed by farmer cooperatives.

In the mid-1980's, cooperatives' share of the grain marketing activities decreased. From 1982 to 1988, cooperatives' share of grain marketed decreased from 36 to 30 percent of cash grain receipts. This raises questions about the commitment cash grain farmers have in marketing grain to their cooperatives⁵

² Beverly L. Rotan, economist; Roger A. Wissman, agricultural economist; Charles A. Kraenzle, director, Statistics and Technical Services Staff (STSS); Thomas Gray, rural sociologist; and Celestine C. Adams, agricultural statistician with Agricultural Cooperative Service (ACS), U.S. Department of Agriculture.

³ Wineholt, David. Grain Cooperatives, Farmer Cooperatives in the United States, Cooperative Information Report 1, Section 15, Agricultural Cooperative Service, U.S. Department of Agriculture, Washington, DC, Revised September 1990. p. 9

⁴ Richardson, Ralph M. and others, Farmer Cooperative Statistics, 1980 and 1986, ACS Service Report No. 19 and CIR 1, Section 27, USDA, ACS, Washington, DC, September 1982 and December 1987.

⁵ Kraenzle, Charles A., "Co-ops' Share of Farm Business Stabilizes at 25 Percent," Farmer Cooperatives, Vol. 56, No. 12, March 1990, pp. 12-13.

Cash Grain Farms

Cash grain farms in the United States represented 26 percent of the approximately 2.4 million farms in 1980 and 21 percent of the 2.2 million farms in 1986. Number of cash grain farms decreased from 631,000 in 1980 to 473,000 in 1986—a 25.1 percent decrease compared with a 9.1 percent decrease of all farms (table 1).

In 1986, 40 percent or 191,000 cash grain farmers were located in the Corn Belt. The smallest concentrations were in the Northeast and Pacific regions which, together accounted for only 4 percent of all cash grain farms. The greatest concentrations were in the Corn Belt and Northern Plains. Together, these regions accounted for 60 percent of all cash grain farms. From 1980 to 1986, the number of cash grain farmers decreased in all regions. The smallest percentage decrease in cash grain farms

was in the Mountain region. The greatest percentage decrease was in the Pacific region.

By farm size, the largest number of cash grain farms both in 1980 and 1986 was in the \$1,000 to \$9,999 farm size category. In 1986, 29 percent of the cash grain farms were of this size. The smallest number was in the \$500,000 and more in both years. In 1986, just 1 percent was this size. From 1980 to 1986, the number of cash grain farmers increased in only two farm size categories—\$100,000 to \$249,999 and \$500,000 and more. In each of the other farm size categories, the number of cash grain farms decreased by more than 25 percent.

GENERAL AFFILIATION

General affiliation included both members and nonmember patrons of cooperatives. Cash grain

Table 1—Number of cash grain farms, 1980 and 1986

Category	Farms		Percent change ¹
	1980	1986	
-----Thousands-----			
Region:			
Northeast	18	12	-33.7
Southeast	85	44	-48.2
Lake States	88	63	-28.9
Corn Belt	242	191	-21.1
Northern Plains	105	95	-9.8
South Central	51	38	-24.0
Mountain	24	23	-5.6
Pacific	18	7	-59.7
Farm size: ²			
\$ 1,000 - \$ 9,999	196	138	-29.6
\$ 10,000 - \$ 19,999	85	63	-25.8
\$ 20,000 - \$ 39,999	107	66	-38.2
\$ 40,000 - \$ 99,999	143	97	-31.9
\$ 100,000 - \$ 249,999	63	82	29.0
\$ 250,000 - \$ 499,999	31	20	-35.3
\$ 500,000 and more	6	7	9.7
All cash grain farms	631	473	-25.1

¹ Based on number of farms before rounding to thousands.

² Annual gross farm sales.

farmers, like other types of farmers, can patronize the cooperatives in which they hold membership as well as use other cooperatives on a nonmember patron basis. Which cooperatives they patronize may depend on a number of factors such as price, location, and services provided.

From 1980 to 1986, cash grain farmers who were either members or nonmember patrons increased from 66 percent to 69 percent (table 2). This implies only that a greater proportion of cash grain farmers was associated with cooperatives. It does not describe the level at which these farmers were involved in farmer cooperatives during this period. Later in the report, farmers' levels of cooperative use will be discussed.

By farm size, the smaller farm size groupings tended to have the largest proportion of nonmember patrons. As farm size increased, the proportion

of nonmember patrons decreased. In 1986, for example, 24 percent of the cash grain farmers with sales of \$1,000 to \$9,999 were nonmember patrons compared to 12 percent of those farmers in the largest size category—the \$500,000 and more size category. In contrast, the proportion of farmer members generally increased as size of farm increased.

The Northeast region had the largest proportion of nonmember patrons, both in 1980 and 1986. In 1986, about half of cash grain farmers affiliated with cooperatives were nonmember patrons. The smallest proportion of nonmember patrons was in the Northern Plains region in 1980 and in the Pacific region in 1986.

Table 2—Percentage of cash grain farmers who were cooperative members or nonmember patrons, 1980 and 1986

Category	Members		Nonmember patrons		Total ¹	
	1980	1986	1980	1986	1980	1986
	<i>Percent</i>					
Region:						
Northeast	38	31	30	33	68	65
Southeast	32	30	19	18	52	48
Lake States	49	54	12	19	61	73
Corn Belt	50	46	16	18	66	64
Northern Plains	73	72	9	13	82	85
South Central	37	45	18	18	55	63
Mountain	45	66	19	15	65	81
Pacific	62	61	14	12	76	73
Farm size:						
\$ 1,000 - \$ 9,999	29	28	17	24	46	52
\$ 10,000 - \$ 19,999	47	45	17	22	63	67
\$ 20,000 - \$ 39,999	56	59	16	15	72	73
\$ 40,000 - \$ 99,999	62	65	15	14	77	79
\$ 100,000 - \$ 249,999	69	69	15	12	84	81
\$ 250,000 - \$ 499,999	74	71	9	7	83	78
\$ 500,000 and more	64	74	5	12	69	86
All cash grain farmers	50	52	16	17	66	69

¹ Total may not add due to rounding.

MEMBERSHIP

Even though cash grain farms decreased by 25.1 percent between 1980 and 1986, the proportion of cash grain farmers who were members of cooperatives remained relatively unchanged. In 1980, 316,000, or 50 percent, of cash grain farmers were members. By 1986, the percentage of cash grain farmers holding cooperative membership was up slightly to 52 percent (table 2).

In 1986, the \$500,000 and more category had the largest proportion of cash grain members, with 74 percent holding cooperative memberships. The \$1,000-to-\$9,999 farm size category showed 28 percent of farmers holding cooperative memberships. From 1980 to 1986, the largest percentage decrease in members was among those farmers with sales of \$250,000-\$499,999. The largest percentage increase was among those farmers with sales of \$500,000 and more.

Distribution of Cash Grain Members

Overall, between 1980 and 1986, there was little change in the regional distribution of cash grain members (figure 1). The largest proportion was located in the Corn Belt and Northern Plains. In 1986, the Corn Belt and the Northern Plains accounted for 64 percent of all cash grain members.

Cooperative membership by farm size was distributed about the same for both years; the largest proportion was in the \$40,000-\$99,999 size category and the smallest proportion was in the \$500,000 and more farm size (figure 2).

Multiple Memberships

Cash grain farmers can be members of more than one cooperative. In both years, 23 percent of cash grain farmers held memberships in two or more cooperatives (table 3). The largest proportional

Figure 1—Distribution of Cooperative Membership Held by Cash Grain Farmers, 1980 and 1986

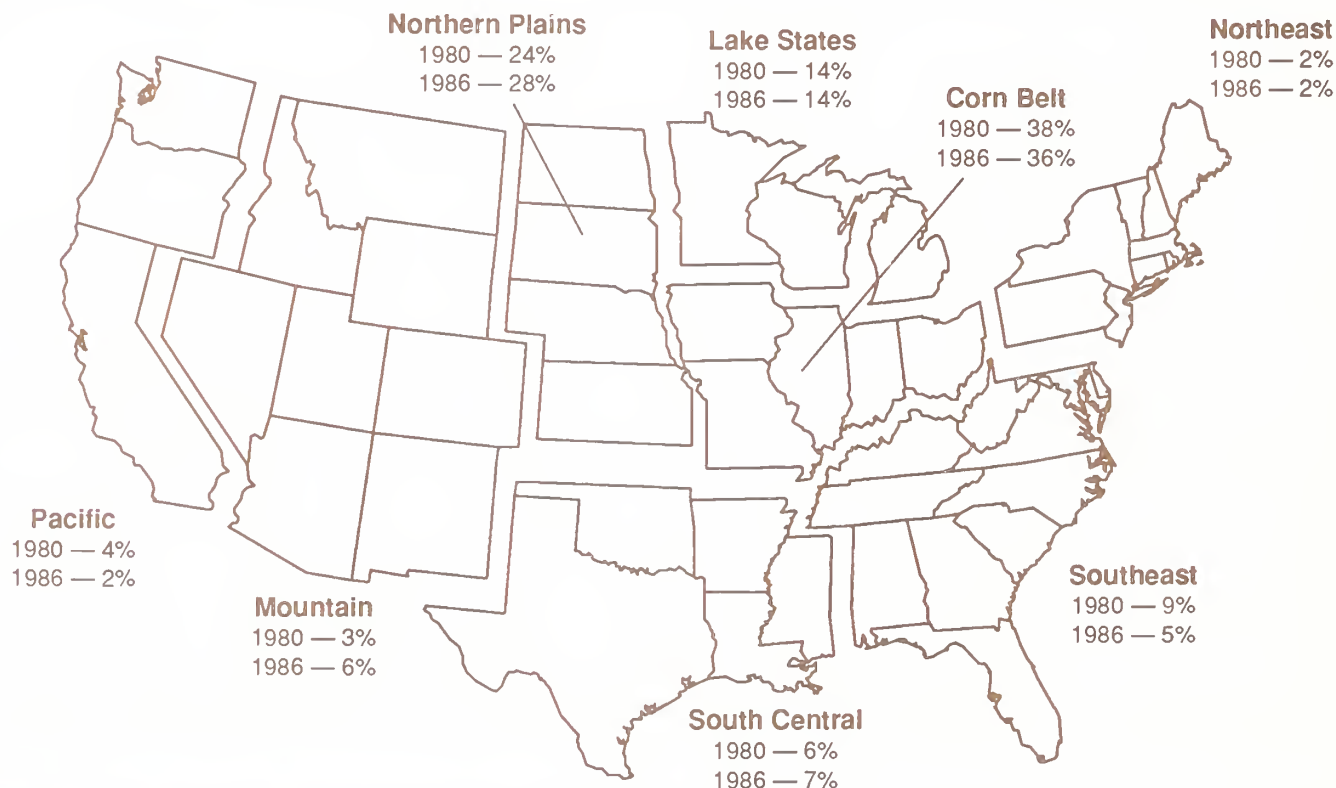


Figure 2—Cooperative Membership Distribution, by Farm Size

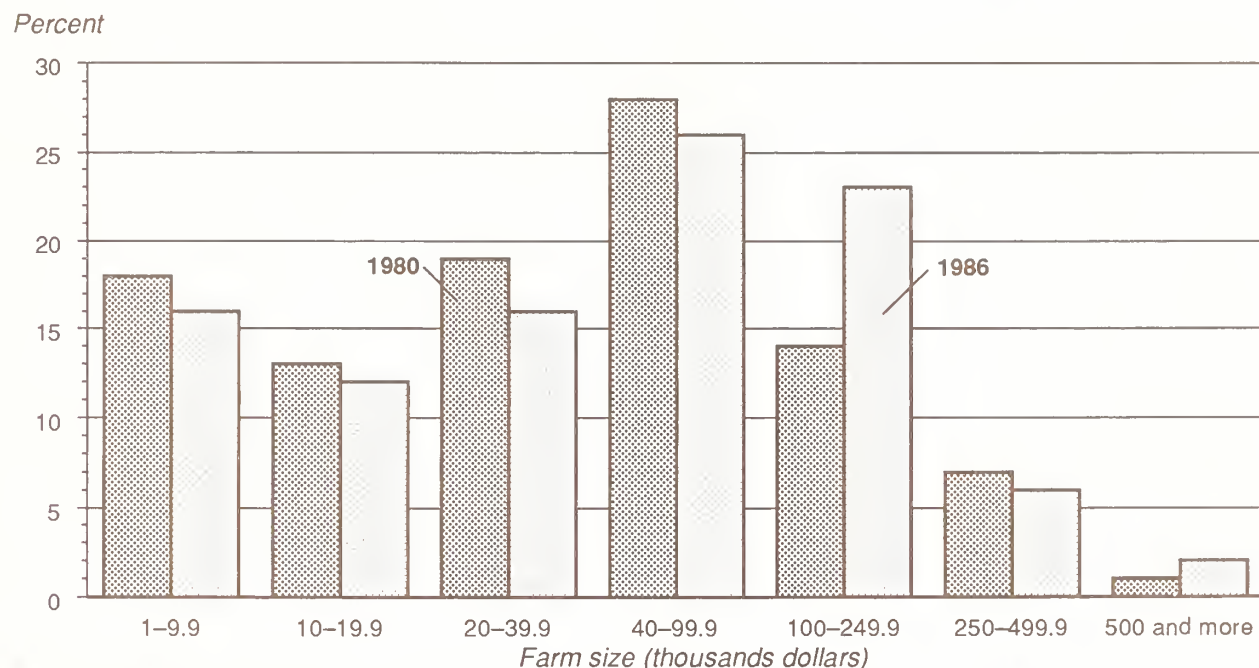


Table 3—Cash grain members with multiple memberships, 1980 and 1986

Category	Two or more memberships	
	1980	1986
	Percent	
Region:		
Northeast	9	6
Southeast	12	7
Lake States	29	31
Corn Belt	18	15
Northern Plains	41	41
South Central	18	18
Mountain	18	34
Pacific	39	28
Farm size:		
\$ 1,000 - \$ 9,999	9	7
\$ 10,000 - \$ 19,999	15	15
\$ 20,000 - \$ 39,999	26	26
\$ 40,000 - \$ 99,999	31	33
\$ 100,000 - \$ 249,999	40	36
\$ 250,000 - \$ 499,999	45	38
\$ 500,000 and more	28	28
All cash grain members	23	23

increase of cash grain farmers who held two or more memberships in cooperatives was in the Mountain region. In the Northern Plains and the South Central region, the proportion with multiple memberships remained the same for both years. The largest decrease occurred in the Southeast.

A positive relationship existed between the proportion of cash grain farmers with multiple memberships and farm size. It was more likely that larger cash grain farmers held multiple memberships. This was evident in both years. In 1980 and 1986, the largest percentage holding membership in two or more cooperatives was in the \$250,000-\$499,999 farm size. The \$1,000-\$9,999 farm size had the smallest percentage of multiple memberships.

NONMEMBER NONPATRONS

Another category of cash grain farmers was those who were not involved with cooperatives either as a patron or as a member. In 1986, 31 percent fell into this category. This proportion was down from 34 percent in 1980 (table 4).

Table 4—Percentage of cash grain farmers who did no business with cooperatives, 1980 and 1986

Category	Nonmember nonpatrons	
	1980	1986
	<i>Percent</i>	
Region:		
Northeast	32	35
Southeast	48	52
Lake States	39	27
Corn Belt	34	36
Northern Plains	18	15
South Central	45	37
Mountain	35	19
Pacific	24	27
Farm size:		
\$ 1,000 - \$ 9,999	54	48
\$ 10,000 - \$ 19,999	37	33
\$ 20,000 - \$ 39,999	28	27
\$ 40,000 - \$ 99,999	23	21

The Lake States and the Mountain region had the largest proportional decrease between the 2 years. The Southeast had the highest percentage of nonmember nonpatrons. About half the farmers in this region in 1980, and 52 percent in 1986, had no affiliation with cooperatives. In sharp contrast, only 15 percent of farmers in the Northern Plains were nonmember nonpatrons in 1986.

In 1986, there was an inverse relationship between nonmember nonpatrons and farm size. As farm size grew, the proportion of nonmember nonpatrons decreased (table 4). In 1986, the largest size grouping had the lowest proportion of nonmember nonpatrons, with a large drop from 1980.

ECONOMIC PARTICIPATION

Cooperatives are organized to enhance the income of farmers through collectively marketing their farm products and providing farmers with farm supplies at lower cost. The subsequent section will show

Table 5—Percentage of cash grain farmers who used cooperatives to purchase farm supplies and to market farm products, 1986

Category	Purchasing		Marketing	
	Grain members	Nonmember patrons	Grain members	Nonmember patrons
	<i>Percent</i>			
Region:				
Northeast	28	33	12	3
Southeast	25	18	8	3
Lake States	52	18	37	7
Corn Belt	40	17	27	8
Northern Plains	69	12	55	6
South Central	39	17	34	4
Mountain	61	15	36	5
Pacific	57	11	47	5
Farm size:				
\$ 1,000 - \$ 9,999	24	24	12	7
\$ 10,000 - \$ 19,999	41	20	26	8
\$ 20,000 - \$ 39,999	54	14	44	6
\$ 40,000 - \$ 99,999	60	13	43	6
\$ 100,000 - \$ 249,999	64	11	49	6
\$ 250,000 - \$ 499,999	65	7	51	3
\$ 500,000 and over	71	12	46	0
All cash grain farmers	47	17	33	6

some patterns cash grain farmers followed in marketing farm products and purchasing farm supplies.

Marketing and Purchasing Farm Products

Marketing

Thirty-three percent of cash grain farmers used cooperatives to market farm products as members; 6 percent used cooperatives as nonmembers. The percent of cash grain farmers that marketed farm products as cooperative members was 5 times the percentage of farmers that marketed as nonmembers (table 5). Figure 3 indicates that members were more important than nonmembers in marketing farm products through cooperatives in all regions.

Cash grain farmers in the Northeast and Southeast used cooperatives the least for marketing farm products. Fifteen percent or less of these farmers used cooperatives for marketing. The Corn Belt, the most important grain producing region, was next lowest with 35 percent marketing farm products through cooperatives. The greatest pro-

portion of farmers using cooperatives was in the Northern Plains.

By farm size, cash grain members using cooperatives to market products were, on average, larger than nonmember. The exception was in the \$1,000-\$9,999 farm size, where the proportion of members and nonmembers was separated by about 2 percentage points. The \$250,000-\$499,999 farm size had the largest proportion while the \$1,000-\$9,999 farm size had the smallest proportion of cash grain members who used cooperatives to market farm products. Basically, *all* cash grain farmers in the \$500,000 and more farm size marketing farm products through cooperatives were members of a cooperative (figure 5).

Purchasing

Cash grain farmers were generally more apt to use cooperatives for supply purchases than for grain marketings (figures 3-4). This was true in all regions and all farm sizes.

Figure 3—Percent of Cash Grain Farmers Who Used Cooperatives to Market Farm Products, by Region, 1986

Percent of farmers

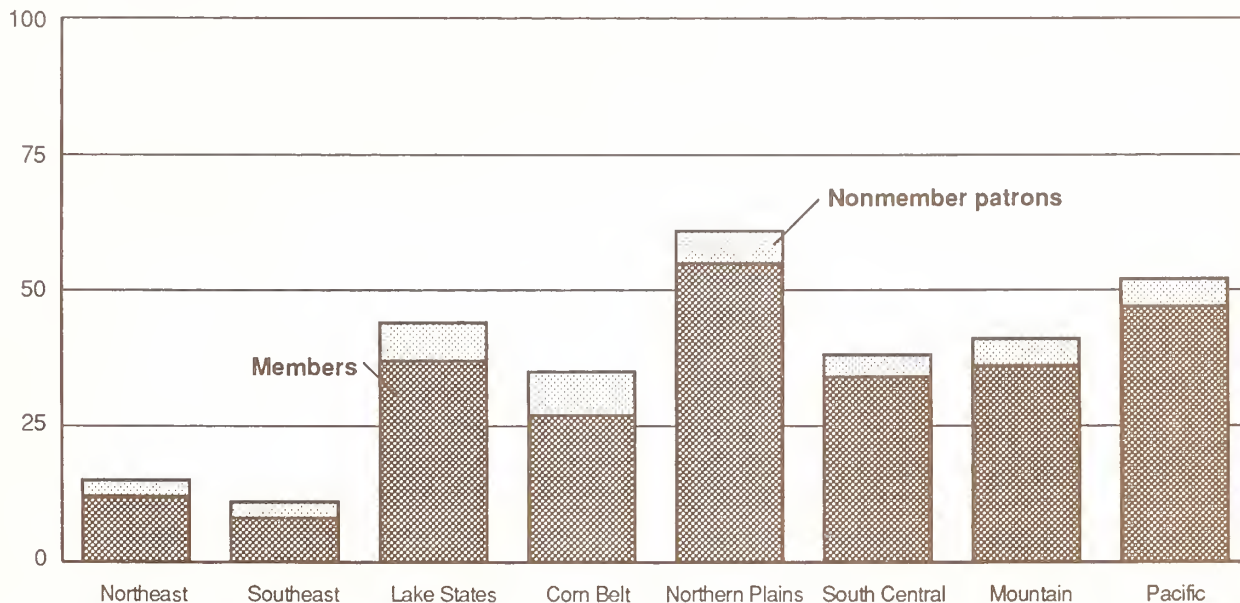


Figure 4—Percent of Cash Grain Farmers Who Used Cooperatives to Purchase Farm Supplies, by Region, 1986

Percent of farmers

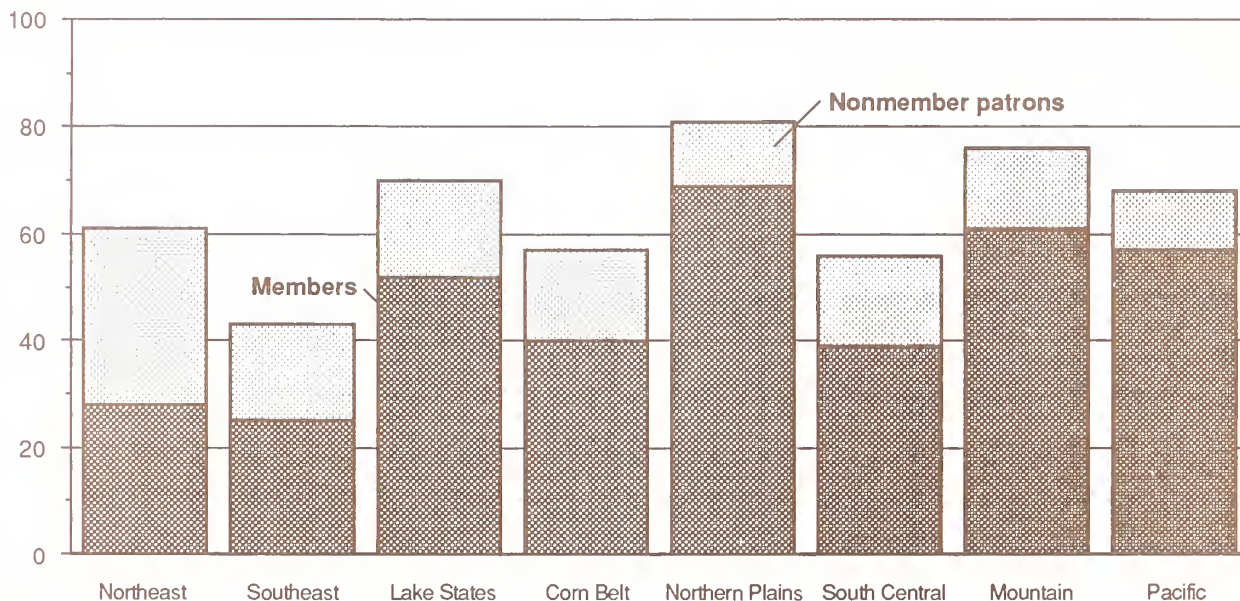
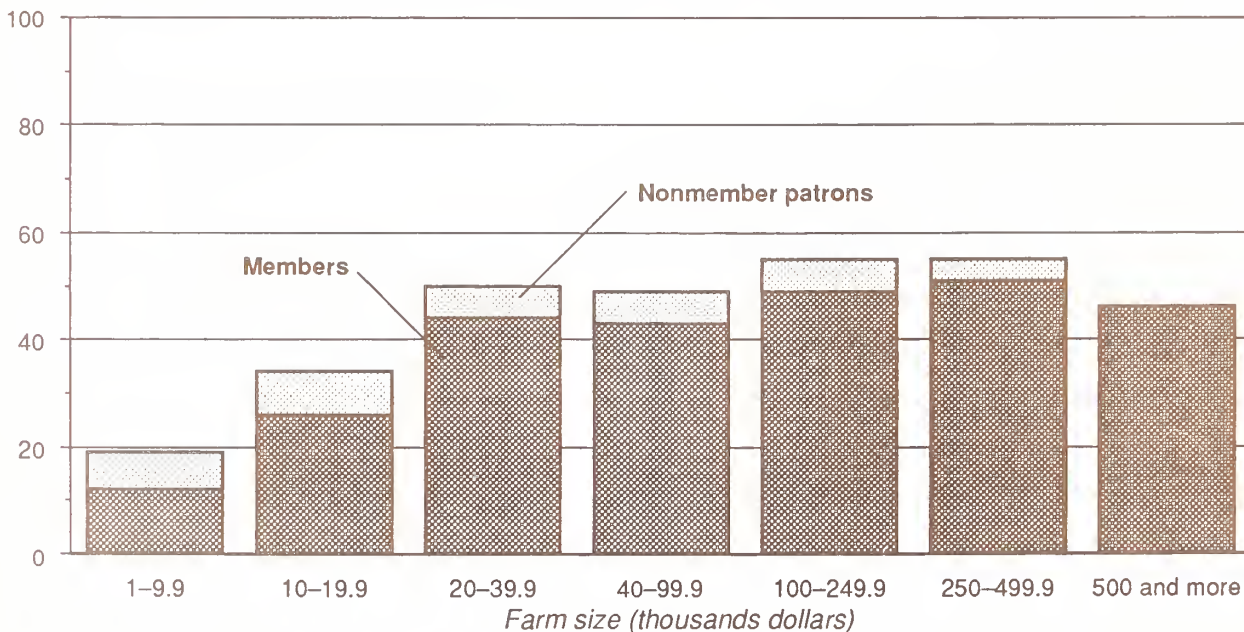


Figure 5—Percent of Cash Grain Farmers Who Used Cooperatives to Market Farm Products, by Farm Size, 1986

Percent of farmers



Members were more apt than nonmembers to purchase farm supplies. Forty-seven percent of cash grain members used cooperatives to purchase farm supplies, while just 17 percent of nonmembers used cooperatives to purchase farm supplies. The proportion of members purchasing farm supplies was a little more than 3 times that of nonmembers purchasing farm supplies (table 5).

In all regions except the Northeast, the proportion of members using cooperatives to purchase farm supplies was greater than of nonmembers. The Northern Plains had the largest proportion of members, 69 percent, and the Southeast had the smallest proportion, 25 percent, purchasing farm supplies (figure 4).

As farm size grew, the proportion of cash grain members using cooperatives to purchase farm supplies also grew. The \$500,000-and-more farm size had a leading 71 percent using cooperatives to purchase farm products. The \$1,000-\$9,999 farm size had the smallest, 24 percent, purchasing farm supplies. The proportion of members and

nonmembers using cooperatives was equal in the \$1,000-\$9,999 farm size (figure 6).

Multiple Usage of Cooperatives

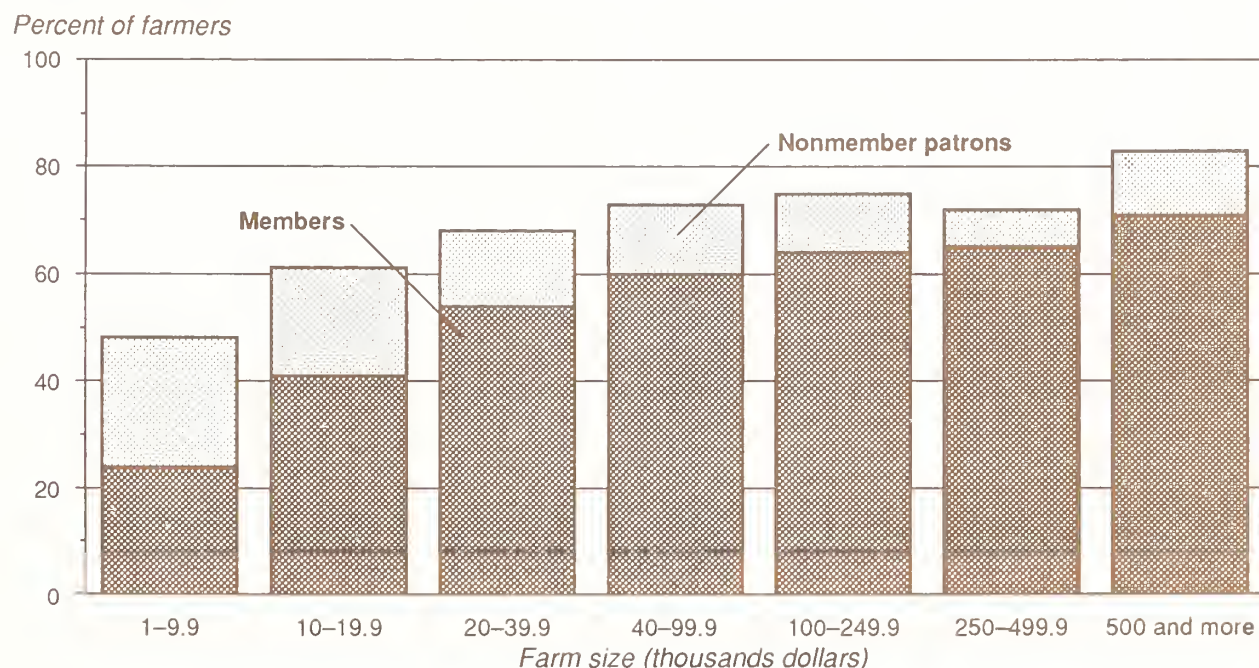
Marketing

Cash grain members used a number of cooperatives to market their farm products. In 1980, 60 percent used at least one cooperative to market their farm products. By 1986, the proportion using at least one cooperative to market farm products increased to 65 percent.

In 1986, 28 percent of cash grain members in the Northern Plains used multiple cooperatives to market farm products. Grain members in the Northeast and Southeast, where grain farms are fewest in number, were least likely to use more than one cooperative to market products (table 6).

In the \$500,000-and-more category, 38 percent of members used multiple cooperatives for marketing. As farm size increased, so did the proportion

Figure 6—Percent of Cash Grain Farmers Who Used Cooperatives to Purchase Farm Supplies, by Farm Size, 1986



of members using two or more cooperatives for marketing (table 6).

Purchasing

From 1980 to 1986, the proportion of cash grain members who used two or more cooperatives to

purchase farm supplies increased by 14 percentage points (table 7). The proportion using more than one cooperative to purchase farm supplies rose from 20 percent in 1980 to 34 percent in 1986.

The Mountain region showed the most significant increase in the proportion of cash grain members using two or more cooperatives to purchase

Table 6—Percentage of cash grain members who used multiple cooperatives to market farm products, 1980 and 1986

Category	Number of cooperatives used			
	One	Two or more	One	Two or more
	1980		1986	
	Percent of grain members in each category			
Region:				
Northeast	31	8	37	1
Southeast	37	4	20	6
Lake States	38	23	47	21
Corn Belt	47	11	44	16
Northern Plains	48	22	47	28
South Central	44	22	57	18
Mountain	34	15	42	12
Pacific	43	23	58	18
Farm size:				
\$ 1,000 - \$ 9,999	43	7	35	7
\$ 10,000 - \$ 19,999	46	10	44	14
\$ 20,000 - \$ 39,999	46	16	56	18
\$ 40,000 - \$ 99,999	42	20	45	21
\$ 100,000 - \$ 249,999	44	23	46	24
\$ 250,000 - \$ 499,999	41	19	47	25
\$ 500,000 and more	41	24	24	38
All cash grain members	44	16	48	17

farm supplies between 1980 and 1986. In 1986, the Northern Plains, with 45 percent, had the largest proportion using two or more cooperatives to purchase farm supplies. The Southeast region, with 16 percent, had the smallest proportion.

As farm size increased, the proportion of cash grain members who used two or more cooperatives

to purchase farm supplies increased. The \$1,000-\$9,999 size category had the smallest proportion and the \$500,000 or more category had the largest proportion using two or more cooperatives to purchase farm supplies. A high proportion of members, 92 percent, used at least one cooperative for purchasing farm supplies.

Table 7—Percentage of cash grain members who used multiple cooperatives to purchase farm supplies, 1980 and 1986

Category	Number of cooperatives used			
	One	Two or more	One	Two or more
	1980		1986	
<i>Percent of grain members in each category</i>				
Region:				
Northeast	67	18	68	23
Southeast	68	15	67	16
Lake States	45	39	50	46
Corn Belt	63	19	64	23
Northern Plains	52	31	51	45
South Central	49	27	65	22
Mountain	68	18	54	37
Pacific	49	25	54	41
Farm size:				
\$ 1,000 - \$ 9,999	66	15	66	18
\$ 10,000 - \$ 19,999	64	18	63	28
\$ 20,000 - \$ 39,999	58	25	59	35
\$ 40,000 - \$ 99,999	54	30	54	35
\$ 100,000 - \$ 249,999	54	30	56	38
\$ 250,000 - \$ 499,999	45	32	53	38
\$ 500,000 and more	49	32	56	41
All cash grain members	57	20	58	34

CASH GRAIN FARMERS' LEVEL OF USE OF COOPERATIVES FOR MARKETING AND PURCHASING⁶

Marketing

Thirty-six percent of cash grain farmers (members and nonmembers) marketed some farm products through cooperatives. Farm product sales include grain as well as all other farm products marketed. Cash grain farmers used cooperatives to market various levels of farm products. Figure 7 shows members, and nonmembers, use of cooperatives for marketing all farm product and grain sales.

In most grain areas, several different outlets (either cooperative or other firms) are available.

⁶ No data were collected in 1980 that described the percentage of business farmers did with cooperatives. Additional questions were included in the 1986 survey to assess what percentage of farm sales grain farmers marketed through cooperatives and /or percentage of farm expenditures made to cooperatives for specified farm supplies.

Generally, cash grain farmers do not have marketing contracts. Therefore, they are free to choose their marketing outlets. However, most who used a cooperative for grain marketing did so at the 81-100 percent level. About half of those nonmembers who used cooperatives to market grain, marketed 81-100 percent of their grain through cooperatives.

Grain Marketing

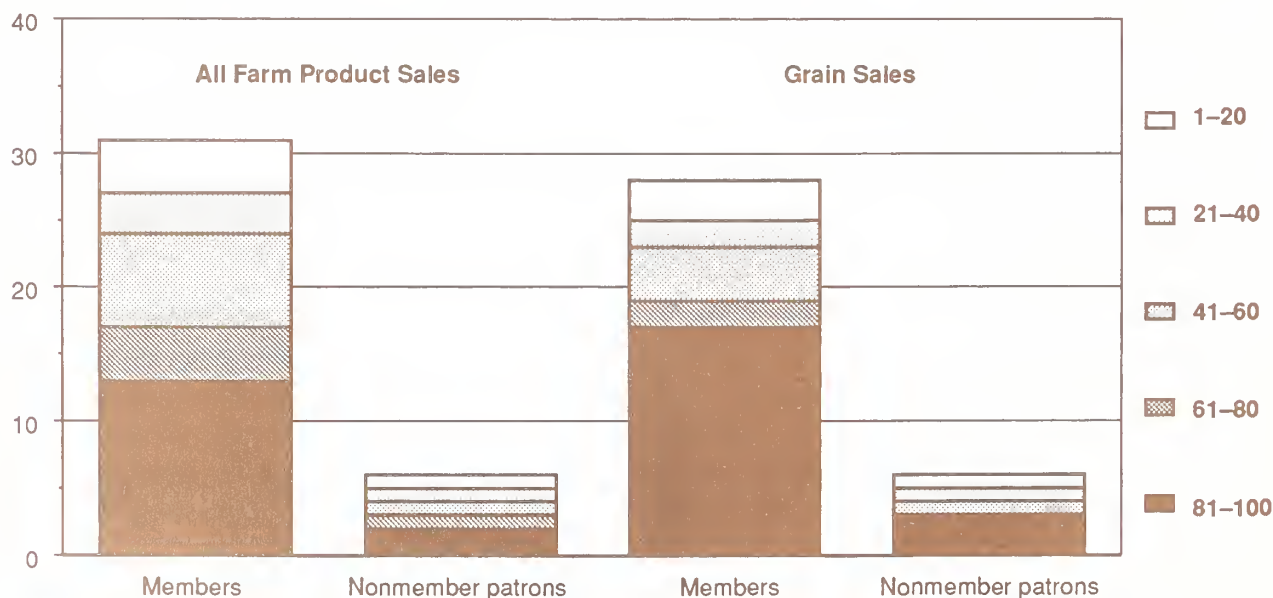
Farmers

Thirty-four percent of cash grain farmers marketed some of their grain through cooperatives. Of these, 20 percent marketed more than 80 percent of their grain through cooperatives (table 8).

The Northern Plains and the Pacific regions had the highest percentage of farmers using cooperatives for grain marketing. In these regions, roughly half marketed grain through a cooperative. These regions, generally wheat and barley producing areas, also had the highest percentage of cash grain farmers using cooperatives to market 81-100 percent of their grain. In the Corn Belt, 32 percent

Figure 7—Percent of Cash Grain Farmers Marketing Various Levels Through Cooperatives, 1986

Percent of farmers



marketed grain through cooperatives, with 19 percent using cooperatives to market grain at the highest level. Corn and soybeans are the chief crops of this area.

The Southeast and Northeast regions, with 6 and 11 percent, had the lowest percentage of cash grain farmers who marketed grain through cooperatives. Both these regions had few grain farmers and were grain deficit areas (used more grain than they produced). Therefore, farmers can market grain direct to local users and need not use grain marketing outlets.

As farm size increased, the percentage of cash grain farmers using cooperatives to market grain rose. At the largest size, there was a slight decline of the percentage using cooperatives to market grain (table 8). The smallest percentage was in the \$1,000-\$9,999 farm size. At the over-80-percent marketing level, the \$20,000-\$39,999 farm size had the largest proportion of cash grain farmers. The proportion of farmers marketing 80 percent or

more of their grain through cooperatives dropped for both the two smallest and the two largest classifications.

Members

Cooperative members, as would be expected, made greater use of cooperatives than grain farmers in general. Fifty-five percent of cash grain members marketed grain through cooperatives (table 9). About 34 percent of these members marketing grain through cooperatives marketed more than 80 percent of their grain through cooperatives.

Grain members in the Pacific and Northern Plains regions had the largest percentage who marketed grain (71 and 64 percent) through cooperatives. The smallest proportion marketing grain through a cooperative was in the Southeast region.

By farm size, the percentage of members marketing grain through a cooperative had less variation than farmers (tables 8-9). Forty-four percent of cash

Table 8—Proportion of cash grain farmers marketing various levels of grain through cooperatives, 1986

Category	Percent of grain					Total ¹
	1-20	21-40	41-60	61-80	81-100	
	<i>Percent</i>					
Region:						
Northeast	5	1	1	1	2	11
Southeast	1	²	1	²	4	6
Lake States	3	2	6	2	24	37
Corn Belt	3	3	5	2	19	32
Northern Plains	5	4	7	5	30	51
South Central	1	3	3	3	20	29
Mountain	5	3	3	4	19	34
Pacific	4	2	²	2	41	48
Farm size:						
\$ 1,000 - \$ 9,999	1	1	1	²	13	16
\$ 10,000 - \$ 19,999	3	1	3	2	16	26
\$ 20,000 - \$ 39,999	4	3	5	3	28	43
\$ 40,000 - \$ 99,999	6	4	7	4	23	44
\$ 100,000 - \$ 249,999	5	4	8	4	26	47
\$ 250,000 - \$ 499,999	7	6	8	3	22	46
\$ 500,000 and over	12	2	5	2	19	40
All cash grain farmers	3	3	5	3	20	34

¹ May not add due to rounding.

² Less than 1 percent.

Figure 8—Percent of Cash Grain Members Using Cooperatives to Market Grain at Various Levels, 1986

Percent of members

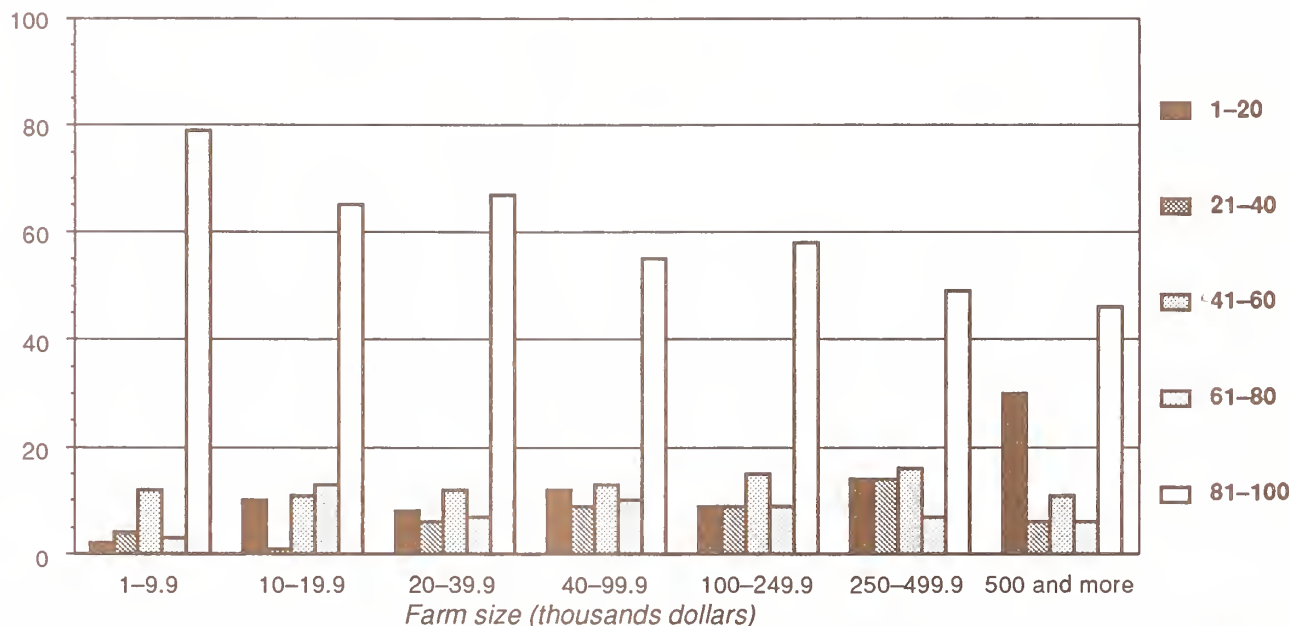


Table 9—Proportion of cash grain members marketing various levels of grain through cooperatives, 1986

Category	Percent of grain					Total ¹
	1-20	21-40	41-60	61-80	81-100	
	Percent					
Region:						
Northeast	14	2	3	3	8	28
Southeast	2	2	4	1	8	13
Lake States	5	4	9	3	39	60
Corn Belt	6	4	8	4	32	54
Northern Plains	6	5	9	7	38	64
South Central	2	6	6	6	38	58
Mountain	7	4	4	6	25	47
Pacific	6	4	2	3	59	71
Farm size:						
\$ 1,000 - \$ 9,999	1	2	4	1	29	36
\$ 10,000 - \$ 19,999	4	1	4	5	28	43
\$ 20,000 - \$ 39,999	5	4	8	5	44	65
\$ 40,000 - \$ 99,999	7	6	8	6	34	61
\$ 100,000 - \$ 249,999	5	5	9	6	35	60
\$ 250,000 - \$ 499,999	8	9	10	4	29	60
\$ 500,000 and over	16	3	6	3	25	55
All cash grain members	5	4	7	5	34	55

¹ May not add due to rounding.

² Less than 1 percent

grain members in the \$20,000-\$39,999 size group marketed 81-100 percent of their grain through cooperatives, the highest of any group (table 9).

In 1986, there were 244,000 cash grain members. Of those, 135,000 used cooperatives to market grain. Figure 8 shows the percentage that used cooperatives at various levels to market grain. Farm size exhibited an inverse relationship.

Cash grain members marketing through cooperatives in the \$1,000-9,999 farm size were more apt to commit to marketing their grain at the highest level. Members in the largest farm size, \$500,000 and more, were less committed to marketing all their grain through cooperatives (figure 8). Larger farmers may be more apt to market grain throughout the year or from different locations than smaller farmers. Therefore, a number of marketing decisions may be made and more marketing outlets (cooperative or noncooperative) may be used.

FARM SUPPLY EXPENDITURES

The relative strength of cooperatives varied by region. Cooperatives developed differently in each

region. Cooperatives were formed by farmers to meet the needs of farmers in the area. In some regions, cooperatives started as seed cooperatives. In other regions, petroleum products were their initial reason for organizing. Cooperative history may account for some of the differences in cooperative strength among regions.

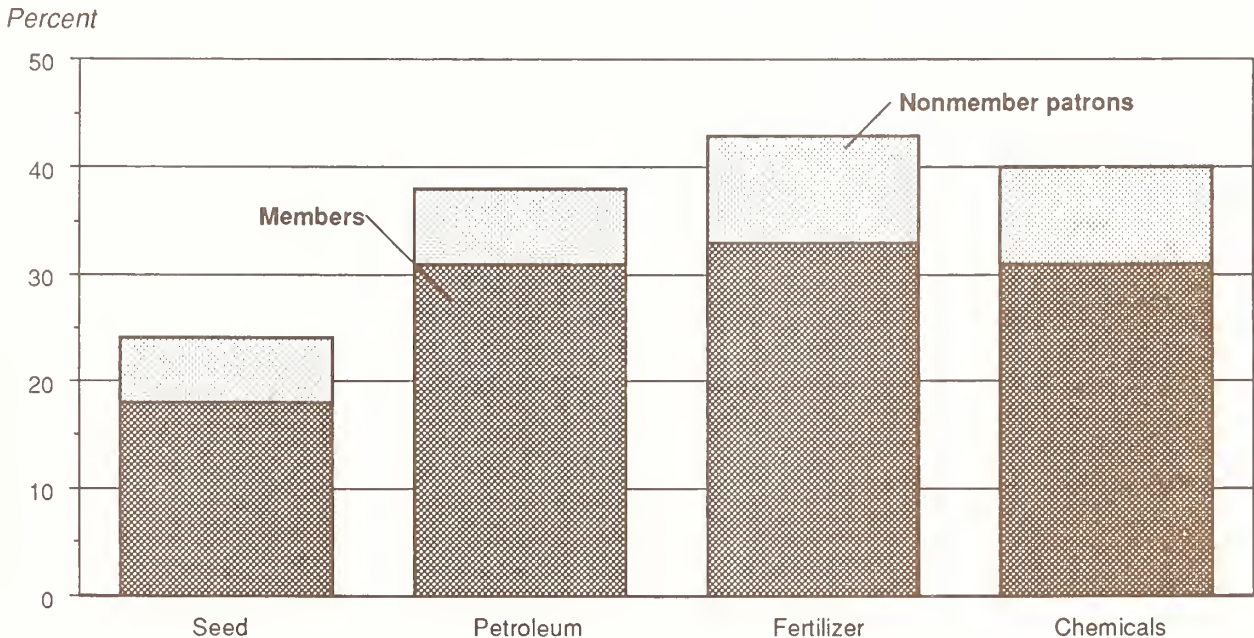
The major farm supply expenditures made by cash grain farmers included seed, petroleum, fertilizer, and chemicals. Respondents were asked what proportion of each of these farm supplies was purchased through cooperatives. The purchasing patterns of cash grain farmers follow:

Farmers

Figure 9 shows the purchasing patterns of cash grain farmers who bought seed, petroleum, fertilizer, and chemicals through cooperatives.

The proportion that purchased petroleum, fertilizer, and chemicals through a cooperative was about the same. However, the proportion purchasing seed through a cooperative was lower than the other supplies. One possible reason for this disparity

Figure 9—Percent of Cash Grain Farmers Purchasing Specified Farm Supplies, 1986



could be that cash grain farmers are more selective and more loyal to brands of seeds. This is especially true for seed corn. Another reason could be that there were many sources—specialized dealers and farmer agents—where a farmer can purchase seed.

Importance of Members

Members made up the largest proportion of cash grain farmers using cooperatives to purchase farm supplies. A large proportion of cash grain members who purchased supplies from cooperatives, purchased more than 80 percent from cooperatives.

Seed—The proportion of cash grain members who purchased seed through a cooperative was lower in all expenditure levels than the other farm supplies. Overall, the highest proportion using cooperatives to purchase seed was in the Southeast

region, which was 18 percentage points higher than the next highest region (table 10). In the Corn Belt, 35 percent purchased at least part of the seed through cooperatives. Only 12 percent of Corn Belt farmers purchased 81 to 100 percent of their seed through cooperatives.

By farm size, the proportion of cash grain members using cooperatives to purchase seed showed little variability. However, in the highest expenditure level (81-100 percent), the proportion using cooperatives to purchase seed generally declined as farm size increased.

Petroleum—Sixty percent of cash grain members purchased petroleum through cooperatives. About 75 percent of these members purchased more than 80 percent of their petroleum through cooperatives (table 11). Regionally, the Northern Plains with 73 percent had the largest proportion of

Table 10—Proportion of cash grain members purchasing various levels of seed through cooperatives, 1986

Category	Percent of grain					Total ¹
	1-20	21-40	41-60	61-80	81-100	
	Percent					
Region:						
Northeast	1	4	16	12	7	39
Southeast	11	7	12	1	26	58
Lake States	9	3	6	4	16	38
Corn Belt	10	3	8	1	12	35
Northern Plains	5	3	4	2	13	29
South Central	7	2	4	1	21	36
Mountain	3	1	2	1	14	21
Pacific	3	3	3	4	26	40
Farm size:						
\$ 1,000 - \$ 9,999	4	1	1	1	22	32
\$ 10,000 - \$ 19,999	5	2	1	1	18	33
\$ 20,000 - \$ 39,999	8	3	2	2	15	39
\$ 40,000 - \$ 99,999	8	4	2	2	13	31
\$ 100,000 - \$ 249,999	10	4	3	3	13	36
\$ 250,000 - \$ 499,999	14	9	7	7	8	42
\$ 500,000 and over	11	3	5	²	12	31
All cash grain members	8	3	6	2	15	34

¹ May not add due to rounding.

² Less than 1 percent.

members who used cooperatives to purchase petroleum. The Southeast and Northeast had the lowest proportion of members using cooperatives to purchase petroleum supplies.

There was little variability across farm sizes in petroleum. The largest farm size had the smallest proportion, 40 percent, of cash grain members using cooperatives to purchase petroleum. In the over 80 percent level, the proportion of members in the \$500,000 and over farm size was just 25 percent. Members in the largest farm size may have had a variety of needs and/or other outlets to obtain petroleum and consequently used other sources for their supply of petroleum.

Fertilizer—Over half (64 percent) of all cash grain members purchased fertilizer through a cooperative. Of these members, more than 75 per-

cent purchased fertilizer through cooperatives in the highest expenditure level, 81 to 100 percent (table 12).

Regionally, the proportion of cash grain members using cooperatives to purchase fertilizer in the Northern Plains, Northeast, Lake States, Corn Belt, and South Central regions was similar, ranging from 61 to 72 percent. Again, farm size displayed no pattern in the proportion of cash grain members purchasing fertilizer through cooperatives. In the largest farm size group, 62 percent used cooperatives for at least part of their fertilizer expenditures. However, only 31 percent purchased 81-100 percent of their fertilizer through cooperatives. Larger farmers may use a wider range of fertilizer suppliers.

Table 11—Proportion of cash grain members purchasing various levels of petroleum through cooperatives, 1986

Category	Percent of grain					Total ¹
	1-20	21-40	41-60	61-80	81-100	
	<i>Percent</i>					
Region:						
Northeast	3	²	2	1	18	24
Southeast	1	²	5	2	11	19
Lake States	5	2	4	2	46	59
Corn Belt	2	2	5	2	47	58
Northern Plains	9	2	9	4	49	73
South Central	4	2	2	6	41	55
Mountain	11	1	1	²	50	63
Pacific	3	9	7	6	31	56
Farm size:						
\$ 1,000 - \$ 9,999	2	1	5	3	37	48
\$ 10,000 - \$ 19,999	3	1	7	4	48	63
\$ 20,000 - \$ 39,999	6	1	7	2	41	57
\$ 40,000 - \$ 99,999	5	2	7	2	49	65
\$ 100,000 - \$ 249,999	5	3	5	5	46	63
\$ 250,000 - \$ 499,999	9	5	1	2	47	64
\$ 500,000 and over	9	²	5	2	25	40
All cash grain members	5	2	6	3	44	60

¹ May not add due to rounding.

² Less than 1 percent.

Chemicals—Sixty percent of all cash grain members purchased chemicals through cooperatives. Regionally, the proportion using cooperatives to purchase chemicals ranged from 42 to 70 percent (table 13). Of the members purchasing chemicals through cooperatives, more than 67 percent purchased 81 to 100 percent of their chemicals through cooperatives.

By farm size, there was little discernible pattern. The proportion of cash grain members purchasing chemicals through cooperatives in the largest expenditure level increased up to the \$20,000-\$39,999 farm size before starting to decline.

OTHER RELATIONSHIPS

Membership, Farm Size, and Farm Supply Purchases

There appeared to be a strong relationship between cooperative membership and farm size with the purchase of selected farm supply expenditures. In general, cash grain farmers who purchased fertilizer, seed, petroleum, and chemicals from cooperatives were very likely to hold membership in a cooperative. However, the relationship between membership and supply purchases for farmers in the smaller farm sizes was much weaker than for those in the larger farm sizes. In the \$1,000-\$9,999 size group, only about half of the purchasers of seed, fertilizer, and chemicals were members. There

Table 12—Proportion of cash grain members purchasing various levels of fertilizer through cooperatives, 1986

Category	Percent of grain					Total ¹
	1-20	21-40	41-60	61-80	81-100	
	<i>Percent</i>					
Region:						
Northeast	7	2	7	²	52	69
Southeast	4	4	8	5	29	49
Lake States	1	2	5	4	57	69
Corn Belt	3	4	7	2	47	62
Northern Plains	3	3	5	4	57	72
South Central	5	3	2	4	48	61
Mountain	2	1	4	²	34	41
Pacific	1	6	2	1	27	36
Farm size:						
\$ 1,000 - \$ 9,999	3	1	1	1	42	49
\$ 10,000 - \$ 19,999	3	1	3	1	46	54
\$ 20,000 - \$ 39,999	2	3	8	4	54	71
\$ 40,000 - \$ 99,999	2	3	7	4	49	65
\$ 100,000 - \$ 249,999	3	4	7	3	53	70
\$ 250,000 - \$ 499,999	6	5	5	2	51	69
\$ 500,000 and over	9	21	²	2	31	62
All cash grain members	3	3	6	3	49	64

¹ May not add due to rounding.

² Less than 1 percent.

may be several reasons why the smaller farms did not join a cooperative. One is that smaller farms purchasing small volumes of farm supply may see no advantage to joining a cooperative; another is that patronage refunds might be less than membership investment requirements.

For the largest size group, cooperative members made up a high percentage of purchases. The percentage of cooperative members purchasing farm supplies increased as farm size increased for all cash grain farmers. In the \$500,000 and more farm size, *all* cash grain farmers using cooperatives to purchase fertilizer and chemicals were members (table 14).

Relationship Between Cash Grain Farmers Who Marketed Grain and Purchased Selected Farm Supply Items

This section includes only members and nonmembers who marketed grain cooperatively. These farmers will be called "member or nonmember grain marketers." Of the total number of grain farmers, 159,000 farmers marketed grain through cooperatives. For these farmers, the proportion who purchase seed, fertilizer, chemicals, and petroleum products from cooperatives was determined.

Members

If cash grain members marketed grain through cooperatives they were very likely to purchase farm supplies through a cooperative (table 15). The

Table 13—Proportion of cash grain members purchasing various levels of chemicals through cooperatives, 1986

Category	Percent of grain					Total ¹
	1-20	21-40	41-60	61-80	81-100	
	<i>Percent</i>					
Region:						
Northeast	3	2	7	²	35	48
Southeast	3	2	5	1	43	53
Lake States	5	1	4	2	58	70
Corn Belt	6	2	5	2	44	59
Northern Plains	5	3	7	4	45	65
South Central	5	3	6	5	29	48
Mountain	5	1	5	3	41	55
Pacific	8	7	5	1	20	42
Farm size:						
\$ 1,000 - \$ 9,999	3	3	3	1	38	47
\$ 10,000 - \$ 19,999	3	3	4	3	42	54
\$ 20,000 - \$ 39,999	5	1	9	2	50	67
\$ 40,000 - \$ 99,999	4	3	6	4	46	63
\$ 100,000 - \$ 249,999	8	3	6	4	45	65
\$ 250,000 - \$ 499,999	9	2	7	1	45	64
\$ 500,000 and over	11	6	²	²	37	54
All cash grain members	5	3	6	3	44	60

¹ May not add due to rounding.

² Less than 1 percent.

Table 14—Percentage cooperative membership of cash grain farmers purchasing selected farm supply items

Category	Item purchased			
	Seed	Fertilizer	Petroleum	Chemicals
<i>Percent cooperative membership</i>				
Farm size:				
\$ 1,000 - \$ 9,999	41	47	62	54
\$ 10,000 - \$ 19,999	80	69	75	68
\$ 20,000 - \$ 39,999	84	82	85	83
\$ 40,000 - \$ 99,999	82	85	87	86
\$ 100,000 - \$ 249,999	87	88	88	88
\$ 250,000 - \$ 499,999	97	94	95	93
\$ 500,000 and over	89	100	77	100

Table 15—Percentage of grain members who used cooperatives for marketing grain and also purchasing selected farm supplies, 1986

Category	Cash grain members who also—			
	Purchased fertilizer	Purchased chemicals	Purchased seeds	Purchased petroleum
<i>Percent</i>				
Region:				
Northeast	88	73	98	48
Southeast	68	68	72	26
Lake States	83	80	53	62
Corn Belt	78	78	48	64
Northern Plains	81	72	38	77
South Central	75	59	43	65
Mountain	42	67	23	67
Pacific	29	40	50	50
Farm size:				
\$ 1,000 - \$ 9,999	66	67	50	61
\$ 10,000 - \$ 19,999	72	69	36	80
\$ 20,000 - \$ 39,999	79	72	47	59
\$ 40,000 - \$ 99,999	71	71	39	69
\$ 100,000 - \$ 249,999	86	79	45	72
\$ 250,000 - \$ 499,999	83	82	57	73
\$ 500,000 and over	74	66	48	28
Total	77	73	44	67

proportion that both marketed grain and purchased various farm supplies from cooperatives ranged from 44 to 77 percent.

The proportion of cash grain members marketing grain and purchasing seed cooperatively was largest in the Northeast and Southeast (98 and 78 percent). Early cooperatives in these two regions were originally organized to provide seeds to farmers. The Northeast region also had the largest proportion of member grain marketers purchasing fertilizer (88 percent). The Lake States had the largest proportion of member grain marketers purchasing chemicals through a cooperative. Purchases of petroleum through cooperatives saw the largest proportion of cash grain members in the Northern Plains (77 percent).

The \$250,000-\$499,999 farm size displayed the largest proportion who not only marketed grain but purchased chemicals (82 percent grain members) and seed (57 percent cash grain members). The largest proportion purchasing fertilizer (86 percent grain members) was in the \$100,000-\$249,999 farm size; the largest purchasing

petroleum (80 percent grain members) was in the \$10,000-\$19,999 farm size (table 15).

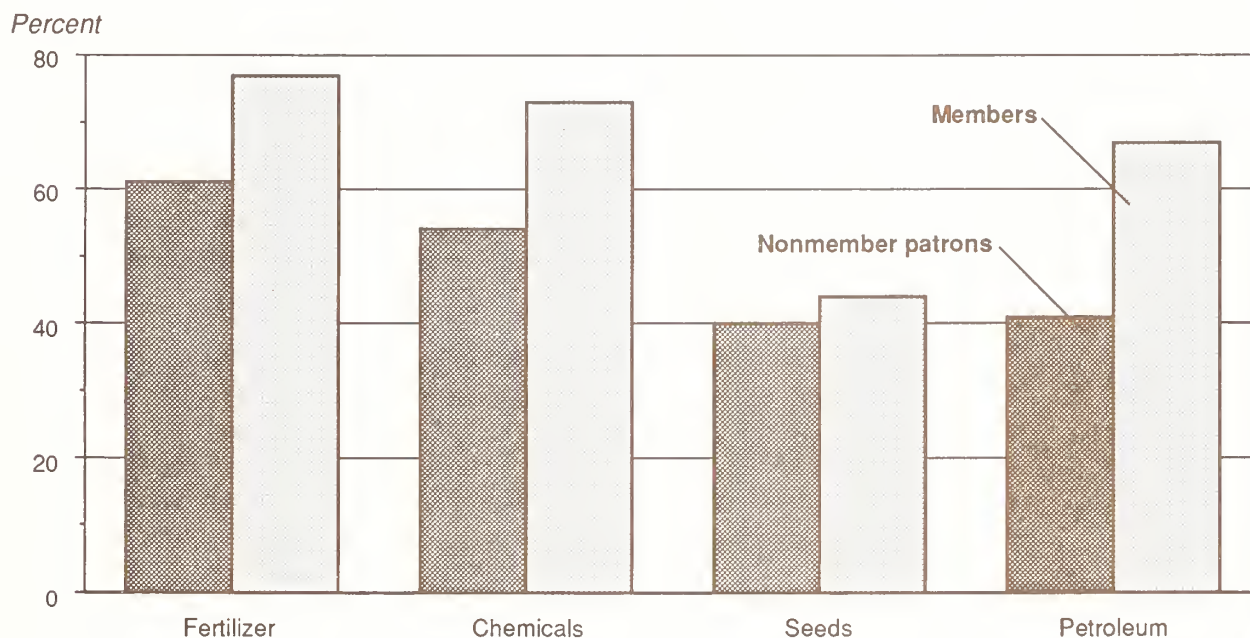
If cash grain farmers, as members or nonmembers, used a cooperative for grain marketing, they were likely to purchase supplies through cooperatives. This survey didn't question farmers' reasons for choosing a supplier but the results suggest a connection between farmers' marketing and purchasing decisions.

Nonmembers

The proportion of nonmember grain marketers who also bought the various farm supplies through a cooperative ranged from 40 to 61 percent (figure 10). Of the nonmembers using a cooperative to market grain, 61 percent also purchased fertilizer; 54 percent purchased chemicals; 40 percent purchased seeds; and 41 percent purchased petroleum (table 14). It is not known why these cash grain farmers didn't join a cooperative.

The highest proportion of nonmember grain cooperative marketers to purchase fertilizer and petroleum (both with 81 percent nonmembers) was

Figure 10—Percent of Cash Grain Farmers Cooperatively Marketing and Purchasing Selected Items, 1986



in the South Central region. *All* nonmembers who marketed grain in the Northeast also purchased seed through a cooperative (table 16). The higher proportion of nonmembers marketing grain and purchasing chemicals was similar in most regions—Lake States, 63 percent; Mountain, 61 percent; Corn Belt, 60 percent; Northeast, 50 percent; and the Northern Plains, 47 percent.

There was no apparent relationship between farm size and purchases of farm supplies. However, the largest proportion of cash grain farmers purchasing fertilizer, petroleum, and chemicals was in the \$20,000-\$39,999 farm size; and seed, in the \$100,000-249,999 farm size.

CONCLUSIONS

From 1980 to 1986, the number of grain farmers dropped sharply. However, in this period of change, farmers' affiliation with cooperatives did not suffer. The proportion with cooperative membership remained the same at about 50 percent for the 2 survey years. When nonmember patrons are added to members, the proportion of farmers affiliated with cooperatives increased slightly.

As farm size increased so did the proportion of cooperative membership. Grain farmers in the largest group, \$500,000 and more, had the highest percent of cooperative membership. Farmers in the smallest group, \$1,000-9,999, were more likely to use cooperatives on a nonmember basis. For exam-

Table 16—Percentage of nonmember cash grain farmers who use cooperatives for marketing grain and also purchasing selected farm supplies, 1986

Category	Cash grain members who also—			
	Purchased fertilizer	Purchased chemicals	Purchased seeds	Purchased petroleum
	Percent			
Region:				
Northeast	88	73	98	48
Northeast	50	50	100	¹
Southeast	46	20	46	20
Lake States	74	63	61	39
Corn Belt	59	60	39	41
Northern Plains	64	47	13	40
South Central	81	10	91	81
Mountain	46	61	38	42
Pacific	23	23	45	26
Farm size:				
\$ 1,000 - \$ 9,999	58	52	46	46
\$ 10,000 - \$ 19,999	53	44	23	25
\$ 20,000 - \$ 39,999	83	74	37	50
\$ 40,000 - \$ 99,999	42	44	40	32
\$ 100,000 - \$ 249,999	80	60	53	50
\$ 250,000 - \$ 499,999	63	63	1	35z
\$ 500,000 and over	¹	¹	¹	¹
Total	61	54	40	41

¹ *All* surveyed cash grain farmers who marketed grain through cooperatives in certain regions or farm sizes were members of a cooperative.

ple, more grain farmers in the smallest group purchased supplies as nonmembers than members (figure 8).

Grain members in various parts of the country use cooperatives in different ways. For example, the Pacific region had the highest proportion of members using cooperatives to market grain but had the lowest proportion of members purchasing fertilizers and chemicals from cooperatives. The Southeast had the highest proportion of members purchasing seeds cooperatively but the lowest proportion of grain members purchasing petroleum products from cooperatives. Cooperatives in each region were organized and continued to develop according to the needs of their farmer-members. The most pressing needs and cooperatives' ability to meet these needs differed by region.

When farmers, especially cooperative members, use cooperatives, they usually used them intensively. Most cooperative members marketing grain and purchasing farm supplies through a cooperative did so at the 80-100 percent level. However, cooperative members in the largest group do not purchase supplies or market grain at the 80-100 percent level as frequently as the average.

When farmers market grain to a cooperative, they are also likely to use cooperatives for farm supplies. For example, the percentage of grain farmers who marketed grain and also purchased farm supplies through a cooperative ranged from 40 to 77 percent.

Cooperatives' managers and directors should be aware of the connection between marketing farm products and purchasing farm supplies, membership, and size of farm. If cooperatives are going to serve the needs of farmers, they need to know their marketing and purchasing habits as well as their expectations and attitudes toward cooperatives.

APPENDIX

Survey Description

This report is based on questions included in the June 1981 and 1987 Acreage and Livestock Enumerative Survey conducted by the U.S. Department of Agriculture's National Agricultural Statistics Service (NASS), formerly the Statistical Reporting Service (SRS). Information was obtained from personal interviews of nearly 17,000 farmers. The population of farms sampled was about 211,000 less than total population of U.S. farms. It was assumed that those farms not in the population surveyed were representative of the farms in the survey. Consequently, data were expanded to represent the total population.

As in all information collected by interview, nonsampling errors can occur, resulting from omissions, incorrect answers, and other errors in data. These errors cannot be measured directly but it is hoped that any errors have been minimized.

Definitions

Farm supply and marketing cooperatives—Farmer cooperatives operating as marketing, farm supply, or both. Bargaining associations are counted as marketing cooperatives. Also included are cooperatives providing services related to marketing or furnishing farm supplies, such as cotton gins, rice dryers, and transportation. These cooperatives usually provide for one vote per member, limited return on invested capital, and return of net margins to member patrons or all patrons on a patronage basis. They also obtain more than half their business from members.

Excluded from this study are cooperatives organized by farmers to provide production services, such as farm management, credit, fire insurance, electricity, and irrigation. Also excluded are cooperatives providing personal services and products, such as cooperative hospitals and medical clinics, burial societies, community (cooperative) water systems, and cooperative grocery stores.

Farms—Places of business from which \$1,000 or more of agricultural products are sold, or normally would be sold, during the year.

Grain—A small hard fruit or seed, especially that produced by a cereal grass such as wheat, barley, feed grains, or soybeans.

Member patrons—Farmers holding membership in a marketing and/or farm supply cooperative and who market their farm products through and/or purchase their farm supplies from a cooperative.

Nonmember patrons—Farmers not holding membership in any cooperative but who use a cooperatives to market their farm products and/or purchase their farm supplies.

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